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REMARKS

Claims 1 through 6, 8 through 11, 19 and 20 are pending in the application.

Claims 1 and 19 have been amended to clarify that the films of the invention may include flame retardant(s) advantageously consisting of one or more organic phosphorous compounds. Support for this amendment can be found in the Application-as-filed, for example on Page 9, third full paragraph, first sentence.

Claim 8 has been amended to conform with Claim 1.

Claim 9 has been amended to correct a grammatical error.

Claim 20 has been amended to reflect that the films of the invention advantageously include flame retardant that consists of compound(s) that are soluble within the thermoplastic. Support for this amendment can be found in the Application-as-filed, for example on Page 9, third full paragraph, last sentence.

Claim 20 has also been amended to reflect that the films of the invention advantageously satisfy the requirements of UL class 94 VTM-0. Support for this amendment can be found in the Application-as-filed, for example on Page 3, final paragraph in its entirety.

Applicants respectfully submit that this response does not raise new issues, but merely places the above-referenced application either in condition for allowance, or alternatively, in better form for appeal. Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

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The Claimed Invention is Patentable
in Light of the Art of Record

Claims 1, 2, 4 through 6, 8, 19 and 20 stand rejected over German Patent Application DE 19630599 A1 to Murschall et al. (DE 599) in view of United States Patent No. 5,265,804 to Zannuci et al. (US 804) and United States Patent No. 5,936,048 to Oishi et al. (US 048). Claim 3 stand rejected over the foregoing references, and further in view of United States Patent No. 6,251,505 to Rakos et al. (US 505). Claims 9 and 10 stand rejected over the foregoing references as applied to claim 1 above, and further in view of United States Patent No. 5,866,246 to Schreck et al. (US 246) and United States Patent No. 5,008,313 to Kishida et al. (US 313). Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over DE 599 in view of US 804, US 246, US 313, and United States Patent No. 4,551,485 to Ragan et al. (US 485).

It may be useful to briefly consider the invention as recited within the claims-as-amended before addressing the merits of the rejection. The claims are directed to transparent, low-flammability, UV-resistant, biaxially oriented film having a thickness of from 5 to 300 μm . The films include at least one crystallizable thermoplastic, at least one UV stabilizer, and at least one flame retardant that is not chemically bonded to the crystallizable thermoplastic. The flame retardant(s) consists of one or more organic phosphorous compounds. The flame retardant and UV stabilizer are provided in the form of one or more compounded masterbatches.

In particularly advantageous embodiments, the films of the invention include at least one UV stabilizer selected from the group consisting of 2-hydroxybenzotriazoles and triazines, along with flame retardant consisting of one or more organic phosphorous compounds, as recited in Claim 19.

In further advantageous embodiments, the biaxially oriented films of the invention satisfy the requirements of UL class 94 VTM-0, as recited in Claim 20.

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The cited references do not teach or suggest the claimed invention, considered either alone or in combination.

Applicants respectfully reiterate that DE 599 is directed to polyethylene terephthalate cast sheet. DE 599 discloses the incorporation of UV stabilizer and one or more antioxidants into such cast sheet. The cast sheet ranges in total thickness from about 0.8 to 20 mm. As correctly noted by the Examiner, DE 599 indicates that the films may be multilayered.

Applicants respectfully reiterate that DE 599 does not teach or suggest biaxially oriented film. DE 599 further does not teach biaxially oriented films ranging in total thickness from 5 to 300 microns. Nor does DE 599 teach or suggest biaxially oriented flame retardant films incorporating the recited flame retardants consisting of one or more organic phosphorous compounds. And DE 599 most certainly does not teach or suggest such biaxially oriented films further incorporating the beneficial UV stabilizers of Claim 19. DE 599 further does not teach or suggest biaxially oriented films satisfying the requirements of UL class 94 VTM-0, as recited in Claim 20.

Applicants thus respectfully submit that the claimed invention is patentable in light of DE 599, considered either alone or in combination with the art of record.

US 804 is merely directed to resins incorporating particular multichromophoric ultraviolet stabilizers. (Col. 2, lines 9 – 13). US 804 incorporates the particular multichromophoric stabilizers in an attempt to address deficiencies noted within more conventional ultraviolet stabilizers. Considered in its entirety, US 804 expressly notes that "it is known" that polyesters "do not respond well" when hydroxybenzophenones are used. (Col. 2, lines 20 – 25). US 804 is quite generic in its description of suitable incorporation methods, noting for example that the multichromophoric stabilizers may

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be incorporated by merely adding the stabilizer to the surface of the molded object. (Col. 7, lines 52 – 57).

Applicants respectfully reiterate that US 804 does not teach or suggest the recited transparent, UV resistant, flame retardant films. And US 804 most certainly does not teach or suggest such films incorporating the recited flame retardants consisting of one or more organic phosphorous compounds. Nor does US 804 teach or suggest such films incorporating flame retardants consisting of one or more organic phosphorous compounds that further incorporate the beneficial UV stabilizers of Claim 19. And US 804 further does not teach or suggest biaxially oriented films satisfying the requirements of UL class 94 VTM-0, as recited in Claim 20.

Applicants thus respectfully submit that the claimed invention is patentable in light of US 804, considered either alone or in combination with the art of record.

Applicants respectfully reiterate that US 048 is directed to methods for bonding norbornenyl-based flame retardants to polymer resins. (Col. 4, lines 40 – 45; Col. 7, lines 60 – 66 and Col. 9, line 66 – Col. 10, line 3 and Col. 9, lines 37 - 49). The norbornenyl-compound may constitute up to 60 % of the resulting modified resin. (Col. 15, lines 47 - 51). US 048 expressly describes its modified resins as “quite different” from “known” compounds. (Col. 2, lines 49 – 50). US 048 does note, however, that the norbornenyl-modified resin may be used in conjunction with secondary flame retardants. Such a combination is noted to synergistically provide “further” flame retardance. (Col. 4, lines 60 – 65; Col. 21, lines 9 – 11; Col. 35, lines 27 - 31).

In contrast to the opinion urged within the outstanding Office Action, Applicants continue to respectfully submit that, considered in its entirety, US 048 discourages the use of phosphorous-containing compounds alone. In particular, US 048 expressly notes that the flame retardance provided by such compounds is “insufficient” if the compounds are used “singly.” (Col. 3, lines 49 – 50). US 048 then goes on to state

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that "known" flame retarding methods, i.e. methods that do not incorporate its norbornenyl-modified resins, are "insufficient and impractical." (Col. 4, lines 31 – 32).

Unfortunately, US 048 fails to provide a specific definition as to a minimum acceptable level of flame retardance. The working examples of US 048 do, however, indicate that the synergistically enhanced flame retardance imparted by the combination of norbornenyl-modified polymer and secondary flame retardant is sufficient to meet UL standard 94 V0 and V1. (Col. 50, lines 20 – 50; Col. 51, lines 20 – 31 and 40 – 53; Col. 51, line 65 – Col. 53, line 25). US 048 further expressly refers to the sample satisfying UL standard 94 V-0 as having "excellent" flame retardance. (Col. 50, lines 30 – 35).

US 048 thus does not teach or suggest the recited transparent, UV resistant, flame retardant biaxially oriented films that include flame retardant(s) consisting of one or more organic phosphorous compounds, as recited in Claims 1 and 19.

And US 048, requiring flame retardants that are bonded to a resin, most certainly does not teach or suggest biaxially oriented films that include flame retardant consisting of compound(s) that are soluble within the thermoplastic and that further satisfy the requirements of UL class 94 VTM-0, as recited in Claim 20. In fact, Applicants continue to respectfully submit that US 048 teaches away from such embodiments by instead disclosing that a combination of bonded and secondary flame retardants are required to achieve such "excellent" flame retardance.

Applicants respectfully reiterate that there would have been no motivation to have combined these references. In contrast to the opinion urged within the Office Action, each of the foregoing references is not directed to polyester thin films. The cast sheet of DE 599 may range up to 20 mm in thickness. US 048 is merely generically directed to resins, which it broadly defines as including waxes and oils.

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Nevertheless, even if the foregoing references were combined (which Applicants submit should not be done), the claimed invention would not have resulted. DE 599 requires cast sheet. US 804 is directed to particular multichromophoric stabilizers. US 048 requires a norbornenyl-modified flame retardant resin. Consequently, even if combined, the recited transparent, biaxially oriented film including flame retardant(s) consisting essentially of one or more organic phosphorous compounds would not have resulted.

Nor would such films including the advantageous UV stabilizers of Claim 19 have resulted. And the combination most certainly would not result in biaxially oriented films including flame retardant consisting of compound(s) that are soluble within the thermoplastic, in which the resulting films further satisfy the requirements of UL class 94 VTM-0, as recited in Claim 20.

Accordingly, Applicants respectfully submit that Claims 1, 2, 4 through 6, 8, 19 and 20 are patentable in light of DE 599, US 804 and US 048, considered either alone or in combination.

Claim 3 is similarly patentable in light of the foregoing references and further in view in US 505.

US 505 is generally directed to the use of light diffusing filler within the outer layer of translucent co-extruded films intended for backlit displays. (Col. 2, line 68 – Col. 3, line 6). In contrast to the recited transparent films, US 505 requires translucent films so that the back of the frame and the light source is not visible through unprinted areas. (Col. 1, lines 23 – 25, (noting that it is important that the films be 'translucent rather than transparent')). US 505 notes light transmissions of 30% as acceptable. (Col. 3, lines 41 – 42). The working examples indicate light transmissions ranging from 50 to 70%. (Col. 7, line 65 – Col. 9, line 55). US 505 further expressly notes that although the films may not be opaque, any light traveling through the film thickness

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must be highly diffused, i.e. the films of US 505 are required to have a sufficiently elevated level of haze. (Col. 1, lines 45 – 50).

Applicants respectfully reiterate that US 505 does not teach or suggest the recited transparent, UV-resistant, flame retardant films, and most certainly not such transparent films exhibiting the recited luminous transmittance of $>80\%$; a surface gloss of >100 and a haze of $\leq 20\%$. In fact, US 505 teaches away from transparent, high gloss, low haze films by requiring translucent films that diffuse light.

Applicants further respectfully reiterate that there similarly would have been no motivation to have combined these references.

However, even if combined (which Applicants submit should not be done), the claimed invention would not have resulted. DE 599 requires cast sheet. US 804 is merely directed to particular multichromophoric stabilizers. US 048 requires a norbornenyl - modified flame retardant resin. US 505 requires translucent films.

Consequently, even if combined, the recited transparent, UV-resistant, biaxially oriented film that includes flame retardant consisting of one or more organic phosphorous compounds would not result, and most certainly not such films exhibiting the recited luminous transmittance of $>80\%$; a surface gloss of >100 and a haze of $\leq 20\%$.

Accordingly, Applicants respectfully submit that Claim 3 is patentable in light of US 505, considered either alone or in combination with the art.

Claims 9 and 10 are similarly patentable in light of foregoing primary and secondary references and further in view of US 246 and US 313.

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US 246 is generally directed to non-transparent polyolefin films, particularly opaque polyolefin films. (Col. 2, lines 25 – 26; Col. 15, line 44 – Col. 16, line 50 and see Col. 1, lines 15 – 18 (noting that films can roughly be divided into two classes, i.e. transparent films and non-transparent films)). The films of US 246 address the chalking found in conventional non-transparent filled films by incorporating incompatible polymeric particulate hollow bodies to form vacuoles in lieu of conventional fillers. (Col. 2, lines 43 – 50 and Col. 1, lines 8 - 10). US 246 notes that the films refract light, i.e. produce haze, due to microcavities present between the film matrix and the incompatible polymeric particulate. (Col. 4, lines 39 – 42).

US 246 thus does not teach or suggest the recited transparent films, and most certainly not the recited transparent, biaxially oriented films exhibiting the a luminous transmittance of $> 80\%$ and a haze of $\leq 20\%$.

US 313 is generally directed to resins incorporating butadiene polymer as an impact modifier. (Col. 2, lines 29 – 36). In addition to butadiene polymer, the impact modifier further contains a particular stabilizer mixture. (Col. 2, lines 40 – 51). US 313 is generally silent as to the ultimate form the resins take. However, the background of US 313 is directed to molded parts, such as produced by injection molding, and injection-molded articles are produced within the examples. (Col. 1, lines 18 – 23; Col. 6, lines 60 – 62; Col. 7, lines 64 – 65; Col. 8, lines 63 – 65, lines 32 – 35; and Col. 11, lines 10 – 11).

US 313 does not teach or suggest the recited transparent films of the invention, and most certainly not the transparent, biaxially oriented films of the claimed invention, exhibiting the recited luminous transmittance of $>80\%$ and a haze of $\leq 20\%$.

Applicants again respectfully reiterate that there similarly would have been no motivation to have combined these references.

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However, even if combined (which Applicants submit should not be done), the claimed invention would not have resulted. DE 599 requires cast sheet. US 804 is merely directed to particular multichromophoric stabilizers. US 048 requires a norbornenyl - modified flame retardant resin. US 246 is directed to non-transparent films. US 313 is directed to molded parts.

Consequently, even if combined, the recited transparent, UV-resistant, biaxially oriented film including flame retardant consisting of one or more organic phosphorous compounds would not result, and most certainly not such films exhibiting the recited luminous transmittance of $>80\%$; a surface gloss of >100 and a haze of $\leq 20\%$.

Applicants thus respectfully submit that Claims 9 and 10 are patentable in light of US 246 and US 313, considered either alone or in combination with the remaining art of record.

Claim 11 is likewise patentable in light of the combination of foregoing references and further in view of US 485.

US 485 is directed to reinforced molding compositions that incorporate silane to improve the impact resistance of the resulting molded article. (Col. 1, lines 45 – 51). US 485 is more specifically directed to impact modified reinforced resins which are injection moldable at a relatively low mold temperature. (Col. 1, lines 7 – 10). Suitable reinforcing fillers for use in US 485 include fibers, whiskers and the like. (Col. 6, lines 57 – 58).

US 485, directed to reinforced molding compositions, does not teach or suggest the recited transparent films of the invention, and most certainly not the transparent, biaxially oriented films of the claimed invention exhibiting the recited luminous transmittance of $>80\%$ and haze of $\leq 20\%$.

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Applicants again respectfully reiterate that there similarly would have been no motivation to have combined these references.

However, even if combined (which Applicants submit should not be done), the claimed invention would not have resulted. DE 599 requires cast sheet. US 804 is merely directed to particular multichromophoric stabilizers. US 246 is directed to non-transparent films. US 313 and US 485 are directed to molded parts.

Consequently, even if combined, the recited transparent, biaxially oriented film including at least one UV stabilizer and flame retardant(s) consisting essentially of one or more organic phosphorous compounds would not have resulted, and most certainly not such films exhibiting the recited luminous transmittance of $> 80\%$; a surface gloss of > 100 and a haze of $\leq 20\%$.

Accordingly, Applicants respectfully submit that Claim 11 is patentable in light of US 485, considered either alone or in combination with DE 599, US 804, US 246, and US 313.

Based on the foregoing, Applicants respectfully submit that the claimed invention is patentable in light of the cited art, considered either alone or in combination.

Conclusion

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 through 6, 8 through 11, 19 and 20 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

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It is not believed that extensions of time or fees are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time and/or fees are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required is hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,

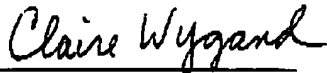


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